Extension Folder 671—1983

Planning Forest Management Options

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FOREST MANAGEMENT
CORRESPONDENCE COURSE

UNIT 1

Purposes

- Recognize the diverse attributes of forestland and the ability of forestland to provide an assortment of products/benefits.
- Understand the importance of planning to achieve individual management objectives.
- Identify basic components of a written forest management plan.
- Identify sources of educational and technical forest management assistance.

So You Own Forestland

If you own a piece of forestland, you're not alone. Four million persons own nearly 58 percent of the nation's commercial forests, about 283 million acres. Millions of others share a common concern for the welfare of the 28 percent that is publicly held. Regardless of your perspective, forests have the ability to provide a wide variety of benefits that we all enjoy.

What are some of the reasons for owning forestland? Consider that values can be either financially related (income producing) or simply to protect the resource and provide pleasure. In explaining why they have forestland, most owners would give several of the reasons from the following lists.

Financial	Not directly financial
Timber sale income	Recreation
Speculation	Soil conservation
Inheritance	Wildlife habitat
Wood for fuel	Aesthetics

Planning is essential to ensure progress toward accomplishing an owner's goals. This first unit of the Forest Management Correspondence Course will help you identify what is involved in preparing a plan to develop and manage a woodlot. It also will refer you to other resources and sources of assistance in managing your forestland.

Financial Considerations: Forests as an Investment

Until the early 1970s, owning land in northern Minnesota was relatively cheap. Much of the land sold for $25 an acre or less and taxes usually were $1-$2 per acre per year. Today that situation has changed. It is not unusual to see land advertised at $500 to $1,000 an acre and taxes at $8-$10 per acre per year. This, of course, varies with location and the characteristics of the land, but no longer can a landowner just ignore his property. With land values, stumpage prices, and taxes undoubtedly increasing each year, forest ownership is an investment. As a landowner, you must be aware of the costs and potential returns associated with that ownership.

COSTS AND POTENTIAL RETURNS

Original Costs

Let's say you bought 40 acres of land in 1969 for $30 an acre and today that land is worth $500 an acre. It has long been paid for and you feel good about the small purchase price compared to what the land is worth today. But do you really know what it is costing you to own this property? You have several alternatives, one being to do nothing and hope that land values continue to rise.

Reinvestment Potential

A second alternative would be to sell the land and reinvest the money. When interest rates are 10 percent, your 40 acres worth $500 an acre would earn $2,000 annual interest income if invested. Considering this possible return plus taxes and insurance, that annual week of camping or deer hunting on your own land becomes very expensive. To forego selling is to give up the opportunity of investing that money elsewhere. Many people would not sell their property at any price, but they should be aware of what they are foregoing by keeping it.

Timber Potential

The timber value or stumpage price usually is included in the per acre price of forestland. A third alternative would be to continue enjoying your property and

managing it for maximum timber and wildlife production as well as for aesthetic values.

Value Increase

There are three main ways that your property will continue to increase in value while you own it: (1) if land values continue to increase, (2) if stumpage prices for timber continue to rise, and (3) if the timber itself continues to grow and therefore increases in value. Only sound forest management practices will ensure continued growth and prevent the loss of existing stumpage.

Tax Alternatives

Property taxes must be paid annually. Today's $8-$10 per acre rates are not unreasonable when you consider what is happening to land values. If you think your taxes are too high, a visit to the country auditor may prove profitable. Most counties offer alternative taxes when land is used primarily for continuous crops of forest products. The county auditor will be able to tell you whether your land qualifies for a class 3E or a Minnesota tree growth tax law classification. Both must be applied for. The second classification is based on the ability of the land to grow trees rather than on land value. In some cases the Minnesota tree growth tax has resulted in a greater tax than the general property tax.

Insurance Costs

Insurance is another cost of owning land. A special insurance policy might be required, depending on your situation. Check with your insurance agent.

STRATEGIES FOR PROFIT

A basic need for any forest owner is a management plan, written or otherwise. A written plan contains a description of the property and recommendations for managing the various timber types. Any work done will require expenses in addition to the owner's time. Any timber sold provides income. Expenses and income lead to recordkeeping and income tax considerations. Like it or not, the landowner becomes a businessman.

Tax Considerations

Forest ownership and operating expenditures are treated differently for income tax purposes. They fall into the following categories: capital expenditures, operating expenses, optional expenses, or timber sales expenses. A few tax references are listed at the end of this folder. Timber tax laws are complicated, so you should work with a knowledgable accountant. You need to be aware of three tax considerations.

The first is the depletion allowance. When timber is sold, the price received is reduced by the basis or original cost of that timber to the owner.

The second is long-term capital gains. For tax purposes, land or timber held for a period of one year or more is taxed at 40 percent the rate of ordinary income.

The third is the investment tax credit. Investment credit can be applied to reforestation expenditures up to a maximum of $1,000 of a $10,000+ expenditure. Investment credit also applies to equipment purchased for use on the land. The amount allowed depends on how much the equipment is used for personal compared to business purposes and on its useful life. Reforestation cost can be amortized over a seven-year period (actually eight years counting the year the expenditure is made). Consult a tax adviser about your specific situation.

Government Cost Sharing

For those who do not think they can afford to carry out the forest management practices outlined in the management plan, the U.S. government has established a cost sharing program administered by the Agricultural Stabilization Conservation Service (ASCS). The county ASCS committees establish cost sharing programs and determine rates for various practices. Approved practices in most states include site preparation for tree planting; tree planting by hand or machine; timber stand improvement such as thinning, release, and pruning; and some wildlife practices. If you are interested, contact your local or county ASCS office or Department of Natural Resources (DNR) foresters.

Owning forestland is attractive, primarily to those who have the time and interest needed to manage their holdings. Timberland investments may offer the individual investor an excellent opportunity to build up an estate and to accumulate wealth with the minimum tax liability possible. Timberland seems to be a good long-term investment that yields relatively high rates of return.

Terms and Measures: Describing Your Resource

Before getting started, you should become familiar with some basic terms and legal descriptions that foresters commonly use. Understanding them will help you feel comfortable discussing forestry with others.

LAND DESCRIPTIONS

Owning land implies certain rights and obligations. A deed is used to convey title and ownership information. Property rights vary, so it is important that you become familiar with legal documents that describe your property. Most land in the north central United States is identified by a standard rectangular system that is easy to understand. Consider the following example:

Suppose a legal description for 40 acres identifies the property as NE¼ of the NW¼ of section 10, township 1 north, range 3 west. The place to begin is with a section, which is 1 square mile; in this case section 10. Then, as shown in figure 1, the tract can be located by reading backwards (from the legal description) to identify the northwest quarter of sec-

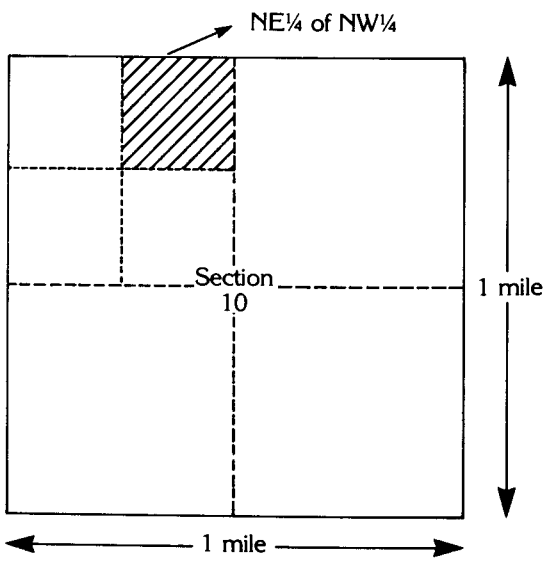

Figure 1. Location of tracts within a land survey section

tion 10 and then the northeast quarter of the northwest quarter that exactly describes the 40 acres. Please write the legal description of your land on the forest management plan and on the questionnaire (see question 5).

Sections of land are systematically located within townships, which consist of 36 square-mile sections. Thus, a township is a block of 36 square miles, which has a designation identifying how many tiers it lies in cardinal directions (north, south, east, or west) of a principal meridian and base line.

Figure 2 shows the relationship of townships to one another and the numbering system of each of its 36 sections. The example identifies the township, which is the first north of the base line and the third west of the principal meridian. Base lines and principal meridians, which usually are true parallels of latitude and longitude, typically are designated by number.

You need to know precisely where your land boundaries are located on the ground. "Running the lines," as foresters refer to it, is the first basic step in determing the composition of the forest and its precise location. Locating and marking property boundaries will establish permanent points from which locations can be measured on the ground and will provide reference points for regulating management activities and for helping to prevent trespassing. You may want to hire a local surveyor if such boundaries and corner posts have not already been established for your forestland.

Foresters often use aerial photographs to locate forestland and to make general assessments of such things as timber type. Photos usually are available for purchase through county or state offices. Your forestry adviser should be able to refer you to sources of photographs.

FOREST INVENTORY

You must know what you have to work with before you can make management decisions. Make an inventory of each major type of tree species present on your land. For more information on taking such an inventory, which is called timber cruising, contact a consulting or service forester. The information gathered during timber cruising is used to structure treatment recommendations for each type. Inventory measurements can be grouped into the broad categories of site measurements, stand measurements, and tree measurements.

Site Measurements

The basic way to describe the ability of land to produce wood fiber is with the use of a site index. This index is used to predict the average height of the dominant trees on an area at 50 years of age. Better sites for tree growth have higher site indexes, indicating their ability to support faster growth rates. Site index measurements normally are made for a single species and may vary for different species on the same site. Other useful measurements of site are soil type and moisture relationships. A complete site analysis also contains measurements of slope steepness and orientation (north, southeast, etc.) or aspect.

Stand Measurements

A stand is a group of trees uniform in species composition and age; all trees in a stand are evaluated and treated similarly. Most forests are made up of several stands, each significantly different enough to require special considerations. For each stand, the following basic measurements and descriptions are used:

Species	Usually the principal species present; more than one species may be indicated if the species are evenly divided.
Stand size	Acreage the stand occupies (number of acres).
Volume	Amount of fiber present (measured in cords or board feet).
Stand age	Age (in years) of average tree, especially if all trees in stand are the same age.

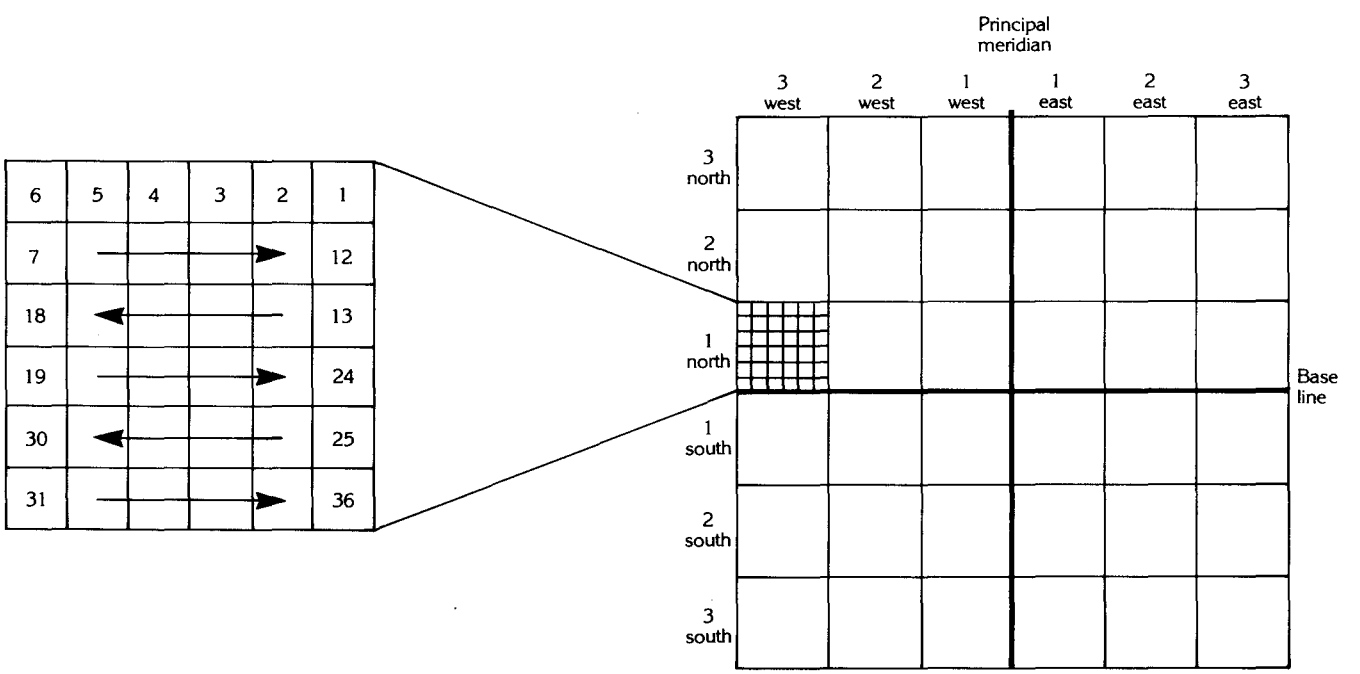

Figure 2. Relationship among township locations and sections

Size class — Diameter of trees (usually by classes or categories such as 0-5 inches diameter, 5-12 inches diameter, etc.) Size class frequently is described by the following terms:

Seedling	Smallest
Sapling	↓
Poletimber	↓
Sawtimber	Largest

Tree Measurements

Rarely is every tree in a stand measured. A forester will adjust the number of trees sampled relative to stand size, owner's objectives, and value of the timber. For each tree measured, the following information is recorded:

Diameter at breast height (d.b.h.)
: Expressed as the diameter of the tree at 4½ feet above ground level (breast height), including bark thickness.

Height
: Total height of the tree or merchantable height may be recorded. Merchantable height is the height of a tree to the point at which the diameter becomes too small to use for the product considered.

Condition
: Many quality characteristics such as number of branches, amount of crook, and presence of rot are used to evaluate the quality of the sampled tree.

After collecting information about your forest using site, stand, and tree information, a forester will assess the status of your woodland and will make recommendations concerning any treatment needed.

The Management Plan: Options for Development

GOALS AND OBJECTIVES

Before starting your chainsaw or ordering trees to plant, wait a minute! Now is the time for considering your reasons for owning forestland and using good information to make decisions about how to manage it. Take time to record why owning your woodlot is important to you. Do you want to maximize the financial returns? Is long-term protection important? Perhaps you want to increase the number of white-tailed deer on your property. Whatever your reasons, write them down! They represent the first component of your management plan and will guide many of your decisions along the way. List your goals and objectives under question 3 on the forest management plan and under question 1 on the questionnaire.

DESCRIPTION OF FORESTLAND

The second part of a management plan contains precise descriptions of where your forest is legally located and the quantity and quality of the timber present. Maps and aerial photos frequently are included. These maps and photos can show the location of your forest and separate the tract into its various components such as stands of different timber types, nonproductive areas, and wildlife impoundments. For each stand of timber, the following information usually is included:

Species	Size class
Stand size	Site index
Condition	Volume

A table like the one shown in question 4 on the forest management plan is used to record the above data.

MANAGEMENT RECOMMENDATIONS

This part of a management plan combines the first two parts. Be sure to keep in mind your objectives for owning forestland and then relate them to the inventory information. With assistance from your adviser, you should be able to decide how to best accomplish your objectives.

For each stand, prepare a written explanation identifying any treatment required such as harvest, timber stand improvement, or planting. If the recommendations indicate that harvest (revenue) or costs are to be incurred, include a cash flow table. This is simply a yearly listing of activities and their expected revenue or cost. A rate of return on investment can be determined from this listing.

Most management plans limit their recommendations to a 5- or 10-year period. You should prepare an annual plan of work to help guide your progress.

Implementing and Updating the Plan

Finally, and most important, it's time to implement the recommended management practices from your plan. This is a continuing task for most landowners. Be cautious about the amount of work you actually perform youself; most activities are strenuous and time consuming, especially to those unaccustomed to woods work. Also, logging timber (if needed) is a dangerous occupation that is best left to professionals.

As you make progress on management activities, be sure to record your accomplishments. Include information about the number of trees planted, the volume of timber removed, and other related data. You will find this useful as income and cost data necessary for the business management of your forest.

Your management plan will require periodic updating. Many things will influence your objectives, such as changing family size and financial situation. Every year or two, take time to review your plan in detail and make necessary changes. Be sure to consult a forestry adviser for assistance in measuring and evaluating your forest.

Assistance is available through a variety of sources. Soils maps can be obtained from your local Soil Conservation Service office. The DNR and the Agricultural Extension Service also can be excellent resources. You also can contract with a forestry consultant about managing your timberland if you lack the time or knowledge to do it. These and other resources are listed at the end of this folder. Please review and list the agencies and their phone numbers under question 7 on the forest management plan.

Summary

To enjoy the greatest benefits of owning forestland, you should:

1) Define your objectives.
2) Complete a resource inventory.
3) Develop a management plan.
4) Implement the recommendations and update the plan.

NOTE: The forest management plan on pages 7-8 of this folder is designed to be updated with each unit of this correspondence course. Fill out the questions on the plan that involve unit 1 and copy the appropriate answers onto the questionnaire. Please return the questionnaire and check any additional publications you want to receive.

Additional References

Several publications are available on request. They are listed on the questionnaire at the end of this folder. Requests will be mailed with the next unit.

The following brochures are available on loan through the Arrowhead Library System or through your local county extension office. Please contact them if you wish to borrow a copy.

Hoover, W. L. 1978. *Timber Tax Managment.* Purdue University Cooperative Extension Service Publication FNR-80, 63 pages. (For sale from the Agricultural Mailing Room, Agriculture Administration Building, Purdue University, West Lafayette, IN 47907; $3.20.)

USDA. 1982. *A Guide to Federal Income Tax for Timber.* Agriculture Handbook 596, U.S. Government Printing Office. (For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; $4.75.)

Minnesota Forest and Wildlife Management Digest. Forestry Farmers of Minnesota, Inc., Box 363, Park Rapids, MN 56470.

Where to Find Help

DEPARTMENT OF NATURAL RESOURCES, DIVISION OF FORESTRY

This organization provides basic technical assistance to landowners in Minnesota. DNR foresters, including many private forest management specialists, can be located by contacting the DNR regional office closest to your land (listed below), or by checking your local telephone directory.

Region I	DNR-Division of Forestry RR 5, Box 41A Bemidji, MN 56601 218/755-2891
Region II	DNR-Division of Forestry 1201 East Highway 2 Grand Rapids, MN 55744 218/327-1718
Region III	DNR-Division of Forestry 424 Front Street, Box 648 Brainerd, MN 56401 218/828-2616
Region IV	DNR-Division of Forestry Highway 15 South, Box 756 New Ulm, MN 56073 507/354-2196
Region V	DNR-Division of Forestry 2300 Silver Creek Road Northeast Rochester, MN 55901 507/285-7420
Region VI	DNR-Division of Forestry 1200 Warner Road St. Paul, MN 55106 612/296-8607

UNIVERSITY OF MINNESOTA, AGRICULTURAL EXTENSION SERVICE

The Agricultural Extension Service has a long history of working with farmers and others through county agents who usually are located in your county courthouse. Become familiar with this office so you can borrow copies of some of the additional reference materials. Check your telephone directory for a local number. If you have difficulty contacting your local extension agent, call or write the state forestry extension office:

Agricultural Extension Service
College of Forestry
102 Green Hall
1530 North Cleveland Avenue
University of Minnesota
St. Paul, MN 55108
218/373-0720

FORESTRY CONSULTANTS

For a list of forestry consultants, including names and addresses, contact:

Minnesota Department of Natural Resources
Division of Forestry
Box 44, Centennial Building
658 Cedar Street
St. Paul, MN 55155
612/296-4491

TREE FARM SYSTEM

The American Tree Farm System provides a management plan and recognition to landowners who have demonstrated progress in managing their forests. More than 200 inspecting foresters from many organizations cooperate in this successful program, which is managed by forest industries. For a brochure and application, contact:

Minnesota Forest Industries
208 Phoenix Building
Duluth, MN 55802
218/722-5013

FOREST INDUSTRY PROGRAMS

Some individual companies provide assistance to landowners. A list of these is included on the forestry consultant list available from the DNR in St. Paul.

AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

With cooperation from the Department of Natural Resources, this organization is primarily responsible for administering various cost sharing programs. Landowners may be reimbursed for part of the costs of reforestation and timber stand improvement. The first step is to contact your local county ASCS office to apply for the program. If you have difficulty reaching a local office, contact the statewide office at:

U.S. Department of Agriculture
Agricultural Stabilization and Conservation Service
316 North Robert Street
St. Paul, MN 55101
612/725-7652

SOIL CONSERVATION SERVICE

The SCS provides a variety of technical assistance primarily relating to soil and water resources. Contact your local office for advice on soil types, wildlife ponds, field windbreaks, and farmstead shelterbelts. Contact the statewide office at:

U.S. Department of Agriculture
Soil Conservation Service
316 North Robert Street
St. Paul, MN 55101
612/725-7675

Glossary

Aspect—The direction toward which a slope faces.

Site Index—An expression of forest site quality based on height of dominant trees at age 50.

Stand—A group of trees sufficiently uniform in species, age, or condition as to be distinguishable from adjoining areas.

Timber Stand Improvement (TSI)—All cuttings not a part of a major harvest made during the life of a stand for the purpose of improving composition, condition, or rate of growth.

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FOREST MANAGEMENT PLAN

(Retain for future use)

Name _____

Address _____ County _____

1. Acres wooded land _____ Other acres _____

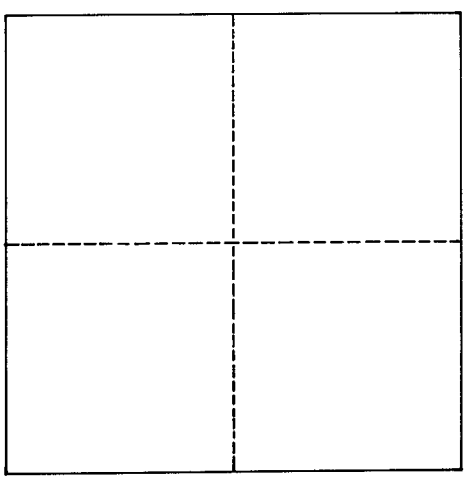
2. Legal description: 40 _____ Section _____ Township _____ Range _____ (see unit I).

3. Goals and objectives: List your goals in owning and managing your forestland (see unit 1). Please underline your most important goal.

4. Stand information table (see units 1, 2, and 3); you may wish to consult a professional forester.

Stand number	Species	Size	Condition	Size class	Site index	Volume

5. Forest map (Draw a map of your forest. Show approximate location of roads, swamps, forest clearings, building sites, power lines, etc.)



6. Your proposed recommendations:

a. Planting (see unit 2)

b. Pruning, thinning, and release (see unit 3)

c. Harvest (see units 3 and 4)

d. Fire and insect protection (see unit 4)

e. Wildlife and water life habitat improvement and recreation development (see unit 5)

7. Assistance needed (local phone numbers for your use) (all units)

Phone number for:
Agricultural Stabilization and Conservation Service _____
County Extension Service _____
Department of Natural Resources _____
Soil Conservation Service _____

Phone number for:
Surveying _____
Private Consulting Forester _____
Courthouse (Forester) _____
Fire Protection _____
Pest Management Assistance _____

Forest Management Correspondence Course Questionnaire

(Please fill out and return)

Unit 1 — Planning Forest Management Options

Name _____

Address _____ County _____

1. Do you own forestland? Yes____ No____
   Please list your reasons for owning forestland.
   Also list your reasons under question 3 on the forest management plan.

2. Do you presently have a forest management plan? Yes____ No____

3. What kinds of costs go along with owning land? How much does it cost to own your forestland per acre (total costs ÷ acres)?

4. Are you using or considering using any strategies for profit? Please list them. Also list them (if appropriate) under questions 3, 6, and 7 on the forest management plan.

5. In the coming units of this correspondence course, you will be studying your own forestland or forestland of your choice. Please list the legal land description of the piece you plan to study (section, township, range). Also list this information under question 2 on the forest management plan.

6. Do you think the land you have described in the previous question needs a forest management plan? Yes ____ No____
If yes, please explain why.

7. What agencies or organizations are available in your area to give you assistance? Please list them. Also list them under question 7 on the forest management plan.

8. Please list any questions you have.

The following materials are available on request. Please check those you would like to receive:

☐ *Farmers Tax Guide,* Internal Revenue Service Publication 225
☐ *Minnesota's Forest Trees,* Extension Bulletin 363